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room and the plants exposed to a saturated atmosphere. At first normal stems from ordinary growing plants were tested in this way to see what would be the effect in the growth of tip and basal end. It was found difficult to make a sharp distinction by means of the outgrowth of adventitious roots and stems. However, another means of determining how far the nature of the growing substance remained true to its inherited tendency presented itself. This was the development of the so-called *callous* at the cut end of the stems. In every case of the stems taken from the normally upright growing plants, this callous developed much faster at the lower end of the stem than at the upper. This remained the same in whichever way the stem was placed. There was no possibility of deception as to the real upper end of the stem by examining this callous. Now this process was repeated with the inverted plants with exactly the same results. The organic upper end of the stem would be detected with perfect certainty by the difference in the formation of the callous.

The author makes no attempt to explain this phenomenon. It was found to be a characteristic of the plant in its normal condition, and the experiments tried on the inverted stems proved that in this case at least, the inner nature of the plant had not undergone an entire change. Externally a complete change had taken place so far as morphological characteristics were concerned. E. L. G.

ZURICH, SWITZERLAND, July 28.

Index to Recent American Botanical Literature.

Agarics—North American. Robt. K. Macadam. (Journ. Mycol. v. 58-64, Part I).

Albinism among Flowers. C. R. Orcutt. (West Am. Sci. vi. 77).

A list of albino plants collected by the author in California.

Algæ of Minnesota—Some. J. C. Arthur. (Reprinted from Bull. Minn. Acad. Nat. Sci. iii. 97-103).

American Magnolias. (Garden, xxxvi, 28).

Anemone cylindrica with Involucels. H. J. Webber. (Amer. Nat. xxiii. 264).

Found at Lincoln, Nebraska.

Aster—A Key to the Species of. Alfred C. Stokes. (Journ. Trenton Soc. Nat. Hist. ii. 52-74).

Avrainvillea—A Systematic and Structural Account of the Genus. Geo. Murray and Leonard A. Boodle. (Journ. Bot. xxxvii. 67-72, 97-101 ; Tab. 288, 289).

Bahia confertiflora, Chænactis tenuifolia und Antirrhinum Nuttallianum. E. Regel. (Gartenflora, t. 1275).

Barberry Flowers. Byron D. Halsted. (Bot. Gaz. xvi. 201).

Basidiomycetes and Myxomycetes—Generic Synopses of. L. M. Underwood and O. F. Cook. (Pamphlet, pp. 21 ; no date).

This pamphlet is to accompany "A Century of Illustrative Fungi," put up by the authors and designed to illustrate all the important groups and as wide a range of genera as possible, which they offer for sale at six dollars, postpaid. The set is planned as an aid to instructors and a guide to students wishing to pursue the study of these organisms. It is well worth the price asked, and as but fifty copies have been prepared, the edition will soon be exhausted.

Carpenteria Californica. (Garden, xxxvi. 26: illustrated).

Cattleya velutina, var. Lietzei. E. Regel. (Gartenflora, t. 1265).

Changes in the Fauna and Flora of California. H. H. Behr. (Proc. Cal. Acad. Sci. (II) i. 94-99).

Compositæ as Delimited in Gray's Synoptical Flora of North America—A Key to the Genera of the. Alfred C. Stokes. (Journ. Trenton Nat. Hist. Soc. ii. 9-41).

Contributions to West American Botany.—I. (West Am. Sci. vi. 62, 63).

A new species, *Hosackia Haydoni* is described. In common with *H. glabra*, Torr., it is known as " deer-weed."

Desmids of the Pacific Coast. Francis Wolle. (Proc. Cal. Acad. Sci. (II.) i. 79, 80).

A list of species collected at Donner, Truckee and Reno, Nev.

Dionæa muscipula. Constance G. DuBois. (Bot. Gaz. xvi. 201).

Diorchidium Tracyi. B. T. Galloway. (Journ. Mycol. v. 95, Pl. X. Figs. 3 and 4).

Echinocactus Texensis, Hopfer. E. Regel. (Gartenflora, t. 1286).

Edible Plants of the World. E. Lewis Sturtevant. (Agric. Science, iii. 174-178).

The author has here tabulated the number of species recorded as edible in each of the natural plant orders. The Leguminosæ are at the head in point of edible species, 320 being recorded, 119 of which are cultivated for food. Of the Fungi there are 339 reported as edible, 3 cultivated. The list is one of great interest and value to the student of economic botany.

Exsiccati in the Herbarium—The Treatment of. Roscoe Pound. (Amer. Nat. xxiii. 263, 264).

A further argument for cutting them up and distributing the species into their genera.

Fagus Antarctica. A. D. Webster. (Garden, xxxvi. 27, 28).

Flowers and Insects—II. Chas. Robertson. (Bot. Gaz. xiv. 172-178 ; illustrated).

Fungi from Western New York—Notes on New or Rare. Chas. E. Fairman. (Journ. Mycol. v. 78-80).

Two new species are described.

Fungi—New species of. W. A. Kellerman and W. T. Swingle. (Journ. Mycol. v. 72-78).

Nine new species are described.

Fungi—New Species of Hyphomycetous. J. B. Ellis and B. M. Everhart (Journ. Mycol. v. 68-72, Pl. X., Figs. 1 and 2).

A new genus and species is described and figured—*Langloisula spinosa.*

Fungi—New Western. J. B. Ellis and B. T. Galloway. (Journ. Mycol. v. 65-68, Pl. X, Figs. 5 and 6).

Thirteen new species are described. *Septosporium heterosporium* is figured.

Fungi of Custer County, Colo.—Some. T. D. A. Cockerell. (Journ. Mycol. v. 84, 85).

Fungi—Notes on.—I. W. G. Farlow. (Bot. Gaz. xiv. 187-190).

Fungi—North American. Part II. A. P. Morgan. (Journ. Cin. Soc. Nat. Hist. xii. 8-22, Pl. i, ii. Reprinted).

This paper deals with the *Lycoperdaceæ. Geaster hygrometricus*, Pers., is relegated to a new genus (*Astræus*) and we shall hereafter know this fungus as *Astræus hygrometricus*, (Pers.) Morg. The author says: "It is impossible to define accurately the genus *Geaster* and retain this species with it."

Fungi of Helena, Mont.—Notes on the. F. D. Kelsey. (Journ. Mycol. v. 80-82).

Supplementary notes to the above are also given in the succeeding article by F. W. Anderson.

Galvesia juncea. (Gartenflora, xxxvii, 400, f. 91).

Girdled Limb—Extraordinary Vitality in a. A. C. Apgar. (Journ. Trenton Nat. Hist. Soc. ii. 7-9, Pl. 1).

Glœosporium nervisequum. E. A. Southworth. (Journ. Mycol. v. 51, 52).

Gymnosporangium—Notes on Cultures of—made in 1887 *and* 1888. Roland Thaxter. (Bot. Gaz. xiv. 163-172).

Hepaticæ—Notes on our. Lucien M. Underwood. (Bot. Gaz. xiv. 191-198).

An extremely interesting paper on some of our northern species, special attention being paid to the nomenclatorial questions involved. Dr. Underwood bases his names strictly on the principle of priority and cites the original author of the specific names accepted in parentheses. He recognizes 140 northeastern species, of which "four are known only from their original descriptions, no specimens existing in any American Collection." He accepts some pre-Linnæan binomials, which is of interest in the discussion now in progress.

Hypericum—Some Notes on. John M. Coulter. (Bot. Gaz. xvi. 200).

Jamaica—Annual Report on the Public Gardens and Plantations for the Year ending 30*th September*, 1888. (Gov. Printing Est., Kingston, Jamaica, 1889).

Kansas Fungi—Kellerman and Swingle. Fascicle II., Nos. 26-50.

If all new species of American fungi were as liberally distributed as these sets have been, there would be no complaint abroad that "our types are impossible to get." The present fascicle includes six of Ellis and Kellerman's species, and two of Peck's, and represents in all thirteen different genera with twenty-five species. Like the preceding, the specimens are models of neatness and generous in quantity.

Lepidium Virginicum in Italia—Sulla subspontaneita del. L. Micheletti (Nuovo Giorn. Bot. Ital. xxi. 479-481).

Another of our common plants is recorded as naturalized in

Italy, near Cassano del Adda in Lombardy. It is also established in the vicinity of Bayonne, France.

Lithospermum—Notes on. Byron D. Halsted (Bot. Gaz. xvi. 202, 203).

Marine Algæ of the New Jersey coast and adjacent waters of Staten Island. Isaac C. Martindale (Memoirs Torrey Bot. Club. i. 87-111. Price 50 cents).

Mr. Martindale's enumeration of the Algæ hitherto found on these shores taken with Dr. Farlow's "Marine Algæ of New England" and Mr. Pike's list of those found on Long Island, gives us now all the available information concerning the algal flora from Canada to Delaware Bay. In the present paper 223 species and varieties are listed with full citation of localities and collectors. The author is to be congratulated on his success in enlisting the services of many collectors. This contribution to American Algology should certainly stimulate the study of seaweeds, and it is certain that the field which he has so diligently explored will yield new information to those entering it for many years to come.

Mucronoporus. J. B. Ellis and B. M. Everhart. (Journ. Mycol. v. 90-92).

Mutisia Clematis. (Garden, xxxvi. 78, 79, Pl. 711).

Nuclear Division—Studies in. Douglas H. Campbell (Bot. Gaz. xvi. 199).

Oncidium Jonesianum. H. G. Reichenbach and E. Ortgies. (Gartenflora, t. 1272).

Opuntia Fruit as an Article of Food. Edward Palmer. (West Am. Sci. vi. 67-69).

Pinus insignis. W. Coleman. (Garden xxxvi. 47, illustrated).

Platanus occidentalis. (Garden and Forest, ii. 352, illustrated).

Polygonum incarnatum with four-parted Perianth. H. J. Webber. (Amer. Nat. xxiii. 264).

Reported as common in the vicinity of Lincoln, Nebraska.

Pond Weeds—Notes on. Alfred Fryer. (Journ. Bot. xxvii. 65-67, Tab. 287-289.)

Accompanying this article is a representation of *Potamogeton varians*, Morong.

Potamogeton rufescens, Schrad—The Synonomy of. Arthur Bennett. (Journ. Bot. xxvii. 242-244).

Pucciniæ—The Heteræcismal. H. L. Bolley. (Am. Month. Mic. Journ. x. 169-180, illustrated).

Pyrenomycetes—Contributions to the History of the Development of the. Franz von Tavel. (Journn. Mycol. v. 53-58, Pl. ix).

Glœosporium nervisequum and *Fenestella platani* are subjects of illustration.

Roses—North American; Remarks on Characters with Classification. G. N. Best. (Journ. Trenton Nat. Hist. Soc. ii. 1-7).

Dr. Best gives us here some of the results reached by him in the study of the difficult genus *Rosa,* after several years research, with continued reference to the work of M. Crépin in Belgium. It would be well for botanical science if more of our students would turn their attention to the close investigation of single orders or genera, for in this way only can satisfactory results be reached, and order brought out of the chaotic condition of American systematic botany.

Senecio petasites. (Gard. Chron. vi. 47, Fig. 9).

Side Saddle Plants. H. Hendricks. (Garden, xxxvi. 37).

Solidago as Diagnosed in Gray's Synoptical Flora of North America—A Key to the Species of. Alfred C. Stokes. (Journ. Trenton Nat. Hist. Soc. ii. 41-52).

Sphærotheca phytophila—Notes upon. B. D. Halsted. (Journ. Mycol. v. 85, 86).

Sprouting of Seeds—On the Influence of Certain Conditions upon the. L. H. Bailey. (Bull. No. vii. Agric. Exp. Station, Cornell Univ., Coll. of Agric. Pamph. 8vo. July, 1889, illustrated).

Sumachs—The. (Garden and Forest, ii. 338, 339).

Sycamore—What is a. (Garden and Forest, ii. 349. 350).

Ficus Sycomorus, Acer Pseudo-platanus and *Platanus occidentalis* are the three trees commonly called "sycamore." The first can claim the title on the score of antiquity, it being the sycamore of the Bible, *Sycomorus* of the Romans and *Sykomoros* of the Greeks, from "Sykon," Fig, and "Moron," Mulberry. In England the title is applied to the second named, and in our own country the third named monopolizes it, while throughout Europe it is never applied to *Platanus.* On the score of priority and etymology we certainly ought to allow *Ficus Sycomorus* to retain undisputed possession of the popular name, calling our own *Platanus* by the almost equally well known and suggestive title of "Buttonwood".

" *The Botanist.*"—*Being the Botanical Part of a Course of Lectures in Natural History, Delivered in the University of Cambridge, together with a discourse on the Principles of Vitality, by Benjamin Waterhouse, M.D.*, Boston, 1811. H. B. Small. (Ottawa Nat. iii. 58-62).

Excerpts from lectures delivered about a century ago, and said to be the first botanical lectures delivered in America. The principles inculcated read curious enough at the present day. Thus: "there is a small quantity of vital air in a sac, bladder or partition at the big end of every bird's egg: and we presume there is a small portion of the same kind of fluid in every seed; or it may be oxygen in a concentrated state, which is afterwards combined with caloric in the process of incubation." Again: "From numerous well conducted experiments, it appears that a *mucilage* produced by the decomposition of vegetable and animal recrements, constitutes the food or aliment of plants. This aliment is formed from stable manures, from rain water putrefied, from dew, as well as from dead animals and vegetables. To reconcile the doctrine taught by some, that *salt* is the active principle in manures, it should be remembered that putrefaction has two stages; the first converts animal and vegetable substances into a mucilage, and the second converts that mucilage into one or more species of salt," etc., etc.

Trees and Shrubs of San Diego County, California. C. R. Orcutt. (West Am. Sci. vi. 64, 65).

Violets—Sterility of. Thos. Meehan. (Bot. Gaz. xvi. 200).

Vitis palmata. C. S. S. (Garden and Forest, ii. 340, Fig. 118).

Vitis pterophora, Baker. B. Stein. (Gartenflora, t. 1273).

Volvox—The polar Differentiation of, and the Specialization of possible anterior Sense-organs. John A. Ryder. (Amer. Nat. xxiii. 218-221).

Wheat Rust. H. L. Bolley. (Bull. Agric. Exp. Station, Ind. No. 26).

Zygopetalum brachypetalum, var. stenopetalum. E. Regel. (Gartenflora, t. 1277).